

FIELD EXCURSIONS OF THE NEW ENGLAND BOTANICAL CLUB.¹

As a result of the first field day of the New England Botanical Club, centering about Providence, Rhode Island, on May 30, 1911, the collections of the Club gained more than 800 specimens and several species not previously known from Rhode Island. This pioneer experiment of the members of the Club in making a concerted effort to develop the Club Herbarium was considered a great success, and the experience of last year justifies the continuance of such field days. The importance of such outings cannot be over-estimated, for not only does the Club Herbarium gain materially but the members have an unusual opportunity for congenial field-trips and exchange of experiences.

And now that the Club is so soon to have commodious quarters with fireproof cases and other up-to-date facilities for the development of its Herbarium, the ideal toward which we have been modestly working can be more readily accomplished. As already known to some members of the Club, the aim of our Curators has been to make our Herbarium thoroughly representative of the flora of New England: a collection which shall show the distribution of each species and variety in such detail that from it it will be possible to work out with exactness the natural floral areas of the region. No such herbarium for an extensive area exists in America and no such exhaustive study of a large area has been undertaken with us, but in some parts of Europe very gratifying results have been achieved, and in Great Britain the renewal of interest in such work, already well started by H. C. Watson and two Botanical Exchange Clubs, has recently become very obvious under the leadership of Dr. C. E. Moss of Cambridge University. There is no theoretical reason why we in New England should not bring together such a collection as suggested above; and when this aim is accomplished we shall be in a position to draw from our collections conclusions upon questions of plant-distribution which will be of far-reaching importance. It is too soon to outline with anything but the crudest approximation natural floral areas within our limits; such large districts as the Cape Cod region, the Housatonic Valley, the White Mountains, the eastern coast of Maine, etc. are known in a general way, but we certainly

¹ Communicated by the Committee on Field Excursions at the meeting of March 1, 1912.

have not the data by which to determine the exact limits of distribution on Cape Cod, for instance, of *Lespedeza angustifolia* or *Panicum oricola*; in the Housatonic Valley of *Salix serissima* or *Carex Cravei*; in the White Mountains of *Osmorhiza divaricata* or *Lycopodium sitchense*; or in eastern Maine of *Montia lamprosperma* or *Comandra livida*.

Every member of the New England Botanical Club who has aided in the preparation even of Check Lists by states, and all who have taken part in the more detailed work of the Committee on Local Flora realize how lamentably inadequate is the available material in both public and private herbaria; and all of us are cognizant of the constant and too often fruitless appeals from our corps of untiring workers for more data and specimens and for any information whatever from certain regions.

At the last accounting, May 31, 1911, the organized part of the Club Herbarium comprised, besides an encouraging start in Algae, Lichens, Mosses and Hepatics, 43,403 sheets of vascular plants. This figure at first appears large and it might seem that a collection of such proportions is ample for our needs. In fact we might be pardoned for congratulating ourselves upon the vastness of our possessions: the herbarium of the Middlesex Institute, the herbarium of the Metropolitan Park Commission, the private herbarium of the late Herbert A. Young, the Maine collections of F. Lamson Scribner, Elmer D. Merrill, Fred P. Briggs, Miss Kate Furbish and M. L. Fernald; the Berkshire County collections of Ralph Hoffmann, the Marthas Vineyard herbarium of Sidney Harris, and innumerable other collections, including the invaluable New England herbarium of Bryophytes and Lichens of Charles E. Faxon. But valuable as the Club Herbarium has already become, an analysis of its components shows that our present collections are merely a nucleus, about 8 %, in fact, of the material required for an adequate representation of the plants of the six New England states.

In the following analysis of the situation column A gives by states the number of mounted sheets of vascular plants in the herbarium on May 31, 1911; column B, the areas of the states; column C, the number of species and varieties of flowering plants and ferns known in each state; column D, the approximate number of species generally distributed in the state; column E, the approximate number of species of local occurrence in the state; column F, the approximate number of species in each area of 100 square miles; and column G, the approxi-

mate number of sheets the herbarium *should* contain adequately to display the vascular flora of New England. Properly to embody the element of distribution in our calculations the ratio of one specimen of each species to every 100 square miles of area has been used: the figure is entirely arbitrary but has seemed to your committee a conservative one. The figures given in column F are derived as follows from those of columns D and E. The plants represented by the figures in column E are of varying degrees of restriction. For instance, for Massachusetts such plants as the following have been included in this column: *Desmodium grandiflorum*, widely and almost generally distributed but unknown in the more silicious southeastern areas; *Senecio obovatus*, frequent in the western third of the state but rare eastward; *Betula nigra*, known only from the northeastern section; *Solidago macrophylla*, known only from Mt. Greylock; and obviously all plants of strictly coastal habitats. After considerable tabulation it has seemed reasonable to estimate that the plants of column E, the "local" plants, are found on the average over one tenth of the state. The figures in column F are, then, derived roughly by adding the figures in column D to those in column E divided by 10. In determining the number of species in columns D, E, and F one striking fact, which might readily be overlooked, has been clearly brought out: namely, that the larger the state or the more diverse its conditions the smaller the number of generally distributed species and the greater the number of local plants. Thus our largest state, Maine, with its fertile limestone Aroostook region, its alpine summits, and its sterile silicious southern counties, has only 604 generally distributed species (and the figure may prove too large) while, judging from the statements of ranges given in Brainerd, Jones and Eggleston's *Flora of Vermont* that smaller but more uniform state has about 950 generally distributed species.

State	A No. of specimens in the herbarium	B Total area in square miles	C Number of spe- cies known	D Species generally distributed	E Species local	F Approximate no. of species in each area of 100 sq. mi.	G Approximate no. of specimens needed	%		
Maine	21,937	50	33,040	50	2,100	604	1,496	750	248,000	47
New Hampshire	2,599	6	9,305	14	1,720	640	1,080	750	70,000	13
Vermont	2,071	5	9,565	14	1,724	954	770	1,000	96,000	18
Massachusetts	13,715	32	8,315	13	2,445	448	1,997	650	54,000	10
Rhode Island	802	2	1,250	2	1,670	650	1,020	750	10,000	2
Connecticut	2,279	5	4,990	7	2,228	868	1,360	1,000	50,000	10
Total	43,403	100	66,465	100					528,000	100

The table shows conclusively that our attempt to form a representative herbarium is only just begun and that a vast amount of collecting must be done in every state before our collections can be considered in any sense adequate. Massachusetts with a credit of 32 % of present material occupies the best position technically, while Maine, with 50 %, is nearly normal in relation to our desideratum of 47 %. From New Hampshire we have only 2599 specimens, comprising but 6 % of our present total. This is less than two specimens of each species known to occur in the state and obviously can show nothing more detailed than the fact that these plants are found in New Hampshire. Vermont is in an even less enviable position, but Rhode Island, our smallest state, is up to standard with its 2 %, although we have mounted and available only 802 sheets while more than twice that number of species have been observed in the state. Connecticut, too, needs our energetic attention. The flora of the state is unusually well worked out by the Connecticut Botanical Society but we have from Connecticut barely as many specimens as there are species known to occur in the state.

Obviously, those who are interested in this practical work of the Club must now begin active collecting for the Club Herbarium. The need is apparent; the facilities for the proper care of the collections have never been equalled. It is the opinion of your committee that one of the most effective ways of obtaining representative material in quantity for the herbarium is by means of field days in which many members of the Club will participate.

The second field trip of the Club — only the first of many in 1912 it is hoped — will be on Saturday, May 11, with a center at Greenfield, Massachusetts. The party will leave Boston (North Station) at 6.19 p. m. on Friday reaching Greenfield (106 miles from Boston) at 9.23. As on the Rhode Island trip the party will be divided into teams of two and each team assigned a certain district for exploration on Saturday. At 7 p. m. all will meet for dinner and will spend the evening in discussion of the afternoon's results. Those who wish can return to Boston on Sunday morning (leave Greenfield at 7.10 a. m., arrive at Boston at 10.25); those who care to spend more time afield can wait until an afternoon train and will find many attractive regions made available by the different railroad and trolley lines centering at Greenfield — the valleys of the Connecticut, Green, Deerfield, and Miller's Rivers, the trap ridges of central Massachusetts and the southern corners of New Hampshire and Vermont.

Although in our backward and sterile coastal areas there is little good botanizing as early as May 11, the experience of those who have been in the Greenfield region at that date justifies us in announcing that the following, besides many less attractive species, are in flower or fruit early in May: *Equisetum pratense*, *Cryptogamma Stelleri*, *Carex plantaginea*, *Luzula saltuensis*, *Alnus mollis*, *Asarum canadense*, *Clematis verticillaris*, *Hepatica acutiloba*, *Caulophyllum thalictroides*, *Dicentra canadensis* and *D. Cucullaria*, *Dentaria laciniata* and *D. diphylla*, *Mitella diphylla*, *Waldsteinia fragarioides*, *Dirca palustris*, *Lonicera canadensis*, *Viburnum alnifolium* and *Tussilago Farfara*. What more could be asked by the man weary of city life and longing for a real taste of spring?

As above stated the practice of last year will be continued of dividing the party into several squads operating independently within different areas. By this means much more can be accomplished than if the entire party goes to one place. More territory can be explored and the number of plants collected increased as many times as there are parties. Every plant in recognizable condition (whether lichen, moss, fern or flowering plant), especially the common things, should be taken (whether in flower or not). It is not necessary that the collectors determine the material. All that is asked is that each party make as complete a collection as possible in the region assigned keeping mental note of habitats and relative abundance and after pressing and drying the plants send them to the curators accompanied by labels (which the Curators will supply) with a record of habitat and relative abundance.

Here is a grand opportunity for every member to show his loyalty to the Club and his zeal for field-work. Let each of us, then, consider the excursions personal obligations and at comparatively small cost or inconvenience join this undertaking and enjoy a trip afield when Nature most invites us, and at the same time be of practical service to the Club in building up the collections upon which our detailed studies must inevitably depend.

The expense of the Greenfield trip for those who stay through Saturday and Sunday will be well under \$10.00.

Members owning automobiles can render invaluable service by placing their cars at the disposal of the Committee. Several machines can be used to advantage.

The committee desires to know as early as possible how many are

specially interested in the Greenfield field excursions. Will those who plan to attend kindly *notify the chairman before April 15?*

A detailed announcement of trains, hotel arrangements, etc., will be issued later.

If the Greenfield trip proves satisfactory other similar outings will be arranged.

C. H. KNOWLTON, Hingham, Mass. M. L. FERNALD F. G. FLOYD	<i>Committee on Field Excursions.</i>
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THE NEW ENGLAND FEDERATION OF NATURAL HISTORY SOCIETIES will hold its annual meeting Friday and Saturday, April 26 and 27, at the building of the Boston Society of Natural History. The exhibition will be open both days and there will be sessions Friday evening and Saturday morning.—J. H. EMERTON.

REPORTS ON THE FLORA OF THE BOSTON DISTRICT,—XIV.

CYPERACEAE.

CAREX, L. TO N.

C. lanuginosa Michx. Swamps and low meadows, common.

C. laxiculmis Schwein. Rich damp woods; occasional near Boston, also found in West Newbury and Andover.

C. laxiculmis Schwein., var. **copulata** (Bailey) Fernald. Haycock Meadow, Medford (*Wm. Boott*, July 5, 1853).

C. laxiflora Lam. Rich woods and meadows; well distributed throughout, but not very common.

C. laxiflora Lam., var. **blanda** (Dewey) Boott. Abundant near Boston, also collected at Framingham; West Newbury, according to Robinson, Fl. Essex Co., 120, 180.